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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,010	10/23/2003	Patrick Brouhon	B-5274 621390-2	9369

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER

SUN, XIUQIN

ART UNIT	PAPER NUMBER
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2863

DATE MAILED: 08/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/693,010	BROUHON, PATRICK	
	Examiner	Art Unit	
	Xiuqin Sun	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 15-20 and 23 is/are rejected.
- 7) ☒ Claim(s) 14, 21-22 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claim 12 is objected to because of the following minor formalities:
Claim 12, line 5, change "time-varying with" to --time-varying vector with--.
Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 3, 4, 12, 15, 17, 18 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Nagai et al. (U.S. Pub. No. 20010055063).

Regarding claim 1, Nagai et al. teach a method for determining the time-varying absolute position of a device with respect to a surface, comprising: measuring at least one absolute position of the device with respect to the surface (sections 0054, 0055, 0067, 0070, 0079, 0084 and 0086); measuring a time-varying vector representing the relative movement of the device with respect to the surface (sections 0068, 0070-0075 and 0086-0094); and initializing the position of the vector to the at least one absolute

position measurement thereby measuring the absolute position of the vector and thus the time-varying absolute position of the device (sections 0068, 0070-0075 and 0086-0094).

Regarding claims 3, 4 and 20, the teaching of Nagai et al. includes: the detection of the absolute position and the time-varying vector is achieved by non-contact optical means (sections 0051-0055); the detection of the time-varying vector is achieved by non-contact relative optical means (sections 0051-0055); where the detection of absolute position is interrupted, attempting to interpolate across the interrupted area (section 0054).

Regarding claim 12, Nagai et al. further teach a measurement device for determining the time-varying absolute position of the device with respect to a surface, comprising: a first measuring device arranged to determine at least one absolute position of the device with respect to the surface (sections 0054, 0055, 0067, 0070, 0079, 0084 and 0086); a second measuring device arranged to determine a time-varying vector with respect to the surface (sections 0068, 0070-0075 and 0086-0094); processing means adapted to initialize the position of the vector to the at least one absolute position measurement so as to output a signal representing the absolute position of the vector and thus the time-varying absolute position of the device (sections 0068, 0070-0075 and 0086-0094).

Regarding claims 15, 17 and 18 the teaching of Nagai et al. includes: said first and second measuring devices are incorporated into a common optical sensing device (section 0051); said device includes additional support circuitry adapted to store stroke

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data (sections 0059, 0063 and 0064); said device includes communications circuitry adapted to transmit stroke data to a control means such as a computer (sections 0122 and 0123).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagai et al. (U.S. Pub. No. 20010055063) in view of Silverbrook et al. (U.S. Pat. No. 6792165).

Regarding claim 2, Nagai et al. teach a method of determining the absolute position of a stroke made by a measurement device with respect to a surface, comprising: detecting one or more pre-stored reference position indicia and thereby calculating at least one absolute position measurement of the device (sections 0110-0112); in conjunction with the aforementioned detection, measuring the relative movement of the device with respect to the surface and thereby calculating a time-varying motion vector representing the movement of the device with respect to the surface (sections 0054, 0055, 0067, 0068, 0070-0075 and 0086-0094); and calculating the absolute location of the stroke with respect to the surface on the basis of the at least

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one measurement of the absolute position in combination with the time-varying motion vector (sections 0068, 0070-0075 and 0086-0094).

Regarding claim 13, Nagai et al. teach a measurement device for determining the absolute position of a stroke made by a measurement device with respect to a surface, comprising: a first measuring device arranged to detect one or more pre-stored reference position indicia and thereby determine at least one absolute position measurement of the device (sections 0110-0112); a second measuring device arranged to measure the relative movement of the device with respect to the surface and output a time-varying motion vector representing the movement of the device with respect to the surface (sections 0068, 0070-0075 and 0086-0094); processing means adapted to calculate the absolute location of the stroke with respect to the surface on the basis of the at least one measurement of the absolute position in combination with the measurement of the time-varying motion vector (sections 0068, 0070-0075 and 0086-0094).

Nagai et al. do not mention explicitly: said pre-stored reference position indicia are position encoding indicia embedded thereon the surface.

Silverbrook et al. teach a method of determining the time-varying absolute position of a device with respect to a surface, including: determining at least one absolute position measurement of the device using position encoding indicia embedded thereon the surface (col. 5, lines 37-53; col. 9, lines 24-32; col. 10, lines 30-36 and lines 44-54; col. 14, lines 2-20 and lines 27-56)

It would also have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teaching of Silverbrook with the invention of Nagai et al. in order to provide a system that most closely emulates the use of pen/pencil and paper (Silverbrook et al., Abstract and Figs. 1-8).

6. Claims 5-9 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagai et al. (U.S. Pub. No. 20010055063) in view of Silverbrook et al. (U.S. Pat. No. 6792165).

Nagai et al. teach the method including the subject matter discussed above. Nagai et al. do not mention: the detection of the at least one absolute position is performed by imaging a glyph bed which is applied to the surface; wherein the glyph bed is a machine-readable array of marking having absolute positions encoded therein; wherein the glyph bed is invisible to the human eye or alternatively adapted to not substantially interfere with the appearance of the surface when viewed by the human eye; wherein the glyph bed is applied using ink which is visible in the infrared part of the spectrum; the surface is overprinted with human-readable material in such a way as to obscure a portion of the glyph bed; and providing feedback to a user as to whether the stroke detection is successful or not, preferably in real time.

Silverbrook et al. teach a sensing device and method, including: performing a detection of the at least one absolute position by imaging a glyph bed which is applied to a surface (col. 5, lines 54-67; col. 13, lines 52-67 and col. 6, lines 10-24); wherein the glyph bed is a machine-readable array of marking having absolute positions encoded therein (col. 5, lines 54-67; col. 13, lines 52-67 and col. 6, lines 10-24); wherein the

glyph bed is invisible to the human eye or alternatively adapted to not substantially interfere with the appearance of the surface when viewed by the human eye (col. 5, lines 54-67; col. 13, lines 52-67 and col. 6, lines 10-24); wherein the glyph bed is applied using ink which is visible in the infrared part of the spectrum (col. 5, lines 54-67); the surface is overprinted with human-readable material in such a way as to obscure a portion of the glyph bed (col. 6, lines 10-24); and providing feedback to a user as to whether the stroke detection is successful or not, preferably in real time (col. 19, lines 23-36).

It would also have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teaching of Silverbrook with the invention of Nagai et al. in order to provide a system that most closely emulates the use of pen/pencil and paper (Silverbrook et al., Abstract and Figs. 1-8).

7. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagai et al. (U.S. Pub. No. 20010055063) in view of Kinrot et al. (U.S. Pat. No. 6741335).

Nagai et al. teach the method and measurement device that include the subject matter discussed above. Nagai et al. do not mention explicitly: the detection of the relative position of the time-varying vector representing the movement of the device with respect to the surface is preferably measured using heterodyne or homodyne detection of non-doppler, non-speckle image signals derived from changes in the phase and/or the amplitude of reflection from an optical surface; the detection of the relative position

of the time-varying vector representing the movement of the device with respect to the surface is measured using a transducer-based arrangement.

Kinrot et al. disclose a method and measurement device for determining the relative motion of a surface with respect to the measurement device, and teach: the detection of the relative position of a time-varying vector representing the movement of the device with respect to the surface is preferably measured using heterodyne or homodyne detection of non-doppler, non-speckle image signals derived from changes in the phase and/or the amplitude of reflection from an optical surface (col. 6, lines 54-58; col. 9, lines 60-67; col. 10, lines 1-6 and col. 13, lines 16-62); and the detection of the relative position of the time-varying vector representing the movement of the device with respect to the surface is measured using a transducer-based arrangement (col. 26, lines 36-58).

It would also have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Kinrot measurement device in the invention of Nagai et al. in order to use a different but more accurate mechanism to measure a time-varying vector representing the movement of the device in respect to the surface (Kinrot et al., Abstract).

8. Claims 16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagai et al. (U.S. Pub. No. 20010055063) in view of Silverbrook et al. (U.S. Pat. No. 6792165).

Nagai et al. teach the method and measurement device that include the subject matter discussed above. Nagai et al. do not mention explicitly: said device has a pen

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form-factor or alternatively, a mouse form-factor; said device operates by buffering the stroke data for user-activated upload, or communicate the stroke data in real-time, or be responsive to a users command to upload stroke data to a control means.

Silverbrook et al. . teach a sensing device and method, including: said device has a pen form-factor or alternatively, a mouse form-factor (col. 43, lines 44-67 and col. 44, lines 1-20); said device operates by buffering the stroke data for user-activated upload, or communicate the stroke data in real-time, or be responsive to a users command to upload stroke data to a control means (col. 20, lines 14-28; col. 23, lines 62-67; col. 24, lines 1-14; col. 39, lines 50-63; col. 44, lines 22-67 and col. 44, lines 1-5).

It would also have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teaching of Silverbrook with the invention of Nagai et al. in order to provide a system that most closely emulates the use of pen/pencil and paper, and to combine advantages of pen on paper and computer systems (Silverbrook et al., Abstract and Figs. 1-8).

Allowable Subject Matter

9. Claims 14, 21, 22 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Reasons for Allowance

10. The following is an examiner's statement of reasons for allowance:

The primary reason for the allowance of claim 14 is the inclusion of the limitation that said device includes a first and second optical system, the first optical system adapted to image a glyph bed arranged to encode the absolute position onto the surface, and the second optical system adapted to determine the relative movement of the device with respect to the surface. It is this limitation found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claim 21 is the inclusion of the claimed method step of sanity checking interpolation and stroke reconstruction based on the statistically possible locations of strokes applied to the surface. It is this limitation found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claim 22 is the inclusion of the claimed method step of sanity checking absolute position measurements in respect of the sequence of stroke detection events of a surface by reference to user ergonomics, physical size of the surface, type of stroke applied or the speed of application of the stroke. It is this limitation found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claim 24 is the inclusion of the limitation that the claimed method is adapted to detect the absolute position of a plurality of strokes, said strokes constituting writing, wherein sanity checking of the absolute

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position detection is performed based on a forward looking probabilistic algorithm responsive to the physical writing environment and process. It is this limitation found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Prior Art Citations

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- 1) Sekendur (U.S. Pat. No. 5852434) discloses a method and apparatus for absolute optical position determination.
- 2) Pettersson et al. (WO 0126032A) disclose an encoded paper for optical reading.
- 3) Idemura (U.S. Pat. No. 6788888) discloses an optical device and image sensing system.
- 4) Gordon-Ingram (U.S. Pat. No. 6603115) discloses a measurement scale and system incorporating a measurement scale for determining absolute position.

Response to Arguments

13. Applicant's arguments received 6/2/2005 with respect to claims 1-13, 15-20 and 23 have been considered but they are not persuasive.

Applicant argues that "Nagai teaches away from a process, as recited in claim 1". The examiner's position is that Nagai et al. teach a method for determining the time-varying absolute position of a device with respect to a surface, comprising: measuring at least one absolute position of the device with respect to the surface (sections 0054, 0055, 0067, 0070, 0079, 0084 and 0086); measuring a time-varying vector representing the relative movement of the device with respect to the surface (sections 0068, 0070-0075 and 0086-0094); and initializing the position of the vector to the at least one absolute position measurement thereby measuring the absolute

position of the vector and thus the time-varying absolute position of the device (sections 0068, 0070-0075 and 0086-0094).

Applicant argues that "Nagai actually teaches away from a measurement device as recited in claim 12". The examiner's position is that Nagai et al. further teach a measurement device for determining the time-varying absolute position of the device with respect to a surface, comprising: a first measuring device arranged to determine at least one absolute position of the device with respect to the surface (sections 0054, 0055, 0067, 0070, 0079, 0084 and 0086); a second measuring device arranged to determine a time-varying vector with respect to the surface (sections 0068, 0070-0075 and 0086-0094); processing means adapted to initialize the position of the vector to the at least one absolute position measurement so as to output a signal representing the absolute position of the vector and thus the time-varying absolute position of the device (sections 0068, 0070-0075 and 0086-0094).

In response to Applicant's argument that "Nagai discloses calculating a position and calculating an amount of movement of the robot, not measuring a position or measuring a time-varying vector", it is obvious that Nagai's calculation is a part of the measuring procedure for determining a time-varying absolute position of a device, which is carried out to process the measurement data and then generate the output of the detected time-varying absolute position of the device. It is therefore deemed that, giving the claimed invention of the instant application the broadest reasonable interpretation, Nagai discloses all the subject matters recited in claims 1 and 12 as well as the key subject matters recited in claims 2 and 13.

Contact Information

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiuqin Sun whose telephone number is (571)272-2280.

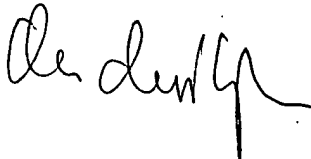
The examiner can normally be reached on 6:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571)272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Xiuqin Sun
Examiner
Art Unit 2863

XS
August 8, 2005


MICHAEL NGHIEM
PRIMARY EXAMINER